

# **AUXILIARY BRACING STRUCTURE FOR MOVABLE RACKS**

## **FIELD OF THE INVENTION**

The present invention relates to an auxiliary bracing structure adopted for use on the  
5 case of an electronic device to brace one end of a movable rack that is not fastened to  
the case.

## **BACKGROUND OF THE INVENTION**

The conventional movable rack located in the case of electronic devices usually have  
10 one end fastened to the case by coupling screws with screw holes. The movable rack has  
another end not being fastened. The unfastened end tends to sag under heavy weight.  
Later on there was a design using hand-driven screws to fasten the other end on the case.  
Such a design is too complicated and difficult to assemble, and too time-consuming.

Further, another approach is developed that saddles the unfastened end over a  
15 transverse beam on the case. While it can prevent sagging, it is more costly, and also  
affects space and wiring configuration of the case.

All the schemes set forth above are not desirable. There is a need to develop an  
improvement to resolve those disadvantages.

## **SUMMARY OF THE INVENTION**

20 Therefore, the primary object of the present invention is to provide an auxiliary  
bracing structure for movable racks to prevent the unfastened end of a movable rack  
from sagging under heavy weight, and to save costs and space without affecting wiring  
configuration.

The auxiliary bracing structure for movable racks according to the invention includes a case, a lid and a movable rack. The lid corresponds to the case and can be coupled with the case to form a substantially closed housing compartment. The lid has a bracing strut mounted on an inner side. The movable rack is located in the housing compartment and has a slot corresponding to the bracing strut. The slot has a loading end with a diameter larger than the diameter of an anchor end thereof. The bracing strut can run through the slot through the loading end and be moved to the anchor end to anchor the movable rack on the lid.

When the case and the lid are coupled, dispose the lid in such a way that the bracing strut runs through the loading end of the slot of the movable rack. Move the lid to slide the bracing strut into the anchor end so that the lid can provide bracing-assisted support for the movable rack.

The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a schematic view of the bracing strut.

FIG. 2 is a schematic view of the lid.

FIG. 3 is a schematic view of the movable rack.

FIG. 4 is a schematic view of the movable rack and the lid coupled together.

FIG. 5 is a schematic view of the case and the lid coupled together.

## **DESCRIPTION OF THE PREFERRED EMBODIMENT**

When a movable rack 30 is located in a case of an electronic device, it has one end fastened to the case 10 (referring to FIG. 4) and another end not fastened to the case 10. As a result, the another end of the movable rack 30 often sags under the heavy weight.

Refer to FIG. 1 for the bracing strut, FIG. 2 for the lid, and FIG. 3 for the movable  
5 rack. The auxiliary bracing structure for movable racks according to the invention includes a case 10, a lid 20 and a movable rack 30.

The lid 20 corresponds to the case 10 and can be coupled with the case 10 to form a substantially closed housing compartment. The lid 20 has a bracing strut 21 mounted on an inner side by riveting. The bracing strut 21 has an anchor groove 211.

10 The movable rack 30 is located in the housing compartment. It has a slot 31 corresponding to the strut 21. The slot 31 has a loading end 311, which has a diameter greater than the diameter of an anchor end 312 of the slot. The loading end 311 further has an assisted coupling member 313 which helps the lid 20 to maintain at a desired elevation to assist the lid 20 to couple with the movable rack 30. The anchor end 312  
15 corresponds to the anchor groove 211. The bracing strut 21 can run through the slot 31 through the loading end 311 and be moved to the anchor end 312 to be anchored thereby, to anchor the movable rack 30 on the lid 30.

Referring to FIGS. 4 and 5, when the case 10 and the lid 20 are coupled together, the bracing strut 21 of the lid 20 runs through the loading end 311 of the slot 31 of the  
20 movable rack 30. First the bracing strut 21 is rested on the assisted coupling member 313 to maintain the lid 20 at a desired elevation. Then the lid 20 can be moved such, that the anchor groove 211 of the bracing strut 21 slides into the anchor end 312. Thereby, the lid 20 can provide bracing-assisted support for the movable rack 30.

Of course, the number of bracing struts 21 and slots 31, and the locations of the  
25 bracing strut 21 and the slot 31 relative to the movable rack 30 may be altered according

to requirements, to enhance the bracing-assisted function of the lid 20 to the movable rack 30.

By means of the invention, the unfastened end of the movable rack 30 in the case 10 has proper support without sagging. It also saves costs and space, and does not affect the wiring configuration.

While the preferred embodiment of the invention has been set forth for the purpose of disclosure, modifications of the disclosed embodiment of the invention as well as other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments, which do not depart from the spirit and scope of the invention.